

Serial No.: 10/044,203

IN THE DRAWINGS:

Please replace Figure 3 with the attached replacement sheet Figure 3.

## REMARKS

### Status Summary

In this Amendment, no claims are canceled, and claims 37 and 38 are added. Therefore, upon entry of this Amendment, claims 1-38 will be pending.

### Clarifying Amendments to the Specification and Drawings

Clarifying amendments have been made to the specification and drawings. The clarifying amendments do not add any new matter to the application as filed.

### Claim Rejections Under 35 U.S.C. § 112

Claims 7 and 8 were rejected under 35 U.S.C. § 112 as being indefinite for failing to particularly point out and distinctly claim the subject matter that Applicant regards as the invention. In particular, it was indicated that claims 7 and 8 lack antecedent basis for "the information." Claims 7 and 8 have been amended for clarity to recite "the mobile subscriber information," which is introduced in claim 1, from which these claims depend. Accordingly, it is respectfully submitted that the rejection of claims 7 and 8 as indefinite should now be withdrawn.

### Claim Rejections under 35 U.S.C. § 103

Claims 1-36 were rejected under 35 U.S.C. § 103(a) as unpatentable over U.S. Patent Application Publication No. 2005/0043036 A1 to loppe et al. (hereinafter, loppe). This rejection is respectfully traversed.

As a preliminary matter, Applicants note that loppe is based on PCT Application No. PCT/CA02/01029, which was filed on July 5, 2002. loppe also claims the priority benefit of U.S. Provisional Patent Application No. 60/303,019, filed on July 5, 2001. loppe lists under Foreign Application Priority Data U.S. Provisional Patent Application No. 60/305,580. However, loppe does not contain a specific reference to U.S. Provisional Patent Application No. 60/305,580, and therefore is not entitled to the priority benefit of that application under 35 U.S.C. § 119(e) or 35 U.S.C. § 102(e).

The present application was filed on January 10, 2002. Since the PCT Application on which loppe is based was filed on July 5, 2002, the only priority date under 35 U.S.C. § 102(e) that loppe is entitled to which predates the filing of present application is July 5, 2001, the filing date of U.S. Provisional Patent Application No. 60/303,019. Applicants have attached a copy of U.S. Provisional Patent Application No. 60/303,019. The provisional patent application is a 3-page document entitled Passive Wireless Network Location Tracker. Applicants respectfully submit that this document does not contain a disclosure sufficient to enable a person of ordinary skill in the art to practice the portions of loppe relied on the Official Action. Thus, because loppe fails to provide an enabling disclosure for the portions of loppe relied upon in the Official Action that predates the filing of the present application, it is respectfully submitted that the rejection of all of the claims should be withdrawn for this reason alone.

Moreover, even assuming for the sake of argument that the portions of loppe relied upon in the Official Action constitute prior art, loppe fails to teach or suggest one or more elements recited in each of the independent claims. For example, independent

claim 1 recites a method for mobile subscriber location management and for routing messages in a mobile communications network environment. The method includes receiving messages transmitted between an HLR and a VLR relating to the location or subscription of a mobile subscriber, extracting mobile subscriber information from a first signaling message, caching the mobile subscriber information, and using the cached information in the processing and routing of subsequent signaling messages transmitted by the HLR or the VLR relating to the mobile subscriber. For example, as illustrated in Figure 6 of the present application, in line 3, mobility management routing (MMR) node **300** caches location information from an update location message transmitted between an HLR and a VLR. In line 4, MMR node **300** caches subscriber information from the insert subscriber data message transmitted between the HLR and to the VLR.

In Figure 7, when a subsequent update location transaction is initiated by the VLR, MMR node **300** responds on behalf of HLR **104** with an insert subscriber data invoke message in line 3. Similarly, in line 6 of Figure 9, MMR **300** receives a cancel location message from HLR **104**. In response MMR node **300** generates subsequent cancel location messages to all VLR nodes with which a subscriber was previously registered. Thus, the method recited in claim 1 includes caching information from signaling messages transmitted between an HLR and a VLR and using the cached information for the processing and routing of subsequent signaling messages transmitted by the HLR or the VLR relating to the mobile subscriber.

There is absolutely no teaching or suggestion in loppe of receiving any signaling messages transmitted between an HLR and a VLR or using cached information

extracted from the signaling messages in the processing and routing of subsequent signaling messages transmitted by the HLR or the VLR relating to the mobile subscriber. In loppe, data processing device **20** delivers derived location information to location management function (LMF) **30**. For example, loppe states:

The location information is released via output **22** of the device **20** to the LBS application **30**, more specifically to the location management **32** of the LBS application. The location management function **32** integrates the location information received from the device **20** with geographic data to generate useful location information for the LBS application **30**. (See paragraph [0039] of loppe.)

From this passage, loppe indicates that location information is delivered to a location management function of a location based services application. Nothing in loppe indicates that LMF **32** or LBS **30** is an HLR or a VLR. Moreover, because loppe teaches only delivering the location information to the LMF application, there is no teaching or suggestion of using the cached information in the processing and routing of subsequent signaling messages transmitted by either device, not to mention transmitted by the HLR or the VLR, as claimed in claim 1. Thus, for this additional reason, the rejection of claim 1 and its dependent claims as unpatentable over loppe should be withdrawn.

Moreover, loppe fails to mention receiving or processing any messages transmitted between an HLR and a VLR as claimed in step (a) of claim 1. In Figure 2 of loppe, the device **20** is located between the MSC and BSC and therefore cannot access any messages transmitted between the HLR and the VLR. Alternative locations for device **20** mentioned in loppe are between the HLR and the MSC, between the MSC

and the VLR, between the VLR and the SGSN, and between the SGSN and the HLR. (See paragraph [0033] and paragraph [0046] of loppe.) None of these passages indicate that device **20** can be positioned to receive or intercept messages transmitted between an HLR and a VLR. Accordingly, for this additional reason, the rejection of claim 1 and its dependent claims as unpatentable over loppe should be withdrawn.

Yet another reason why the rejection of claim 1 as unpatentable over loppe should be withdrawn is that claim 1 recites that the steps are performed in a routing node. loppe nowhere teaches or suggests that the functions performed by data collection device **20** could be a routing node. The only functions performed by data collection device **20** according to loppe are monitoring, caching, and delivering of location information. Routing is not mentioned.

Nonetheless, in paragraph 6 on page three of the Official Action, the following is stated:

loppe does not specifically teach the network device is a routing node. However, it would have been obvious to a person of skill in the art at the time the invention was made to replace the network device with a routing node because doing so would simplify the system by caching the subscriber's information in a routing node for future use. One of ordinary skill in the art would have been motivated to modify loppe system with a routing node to increase the efficiency of the system.

Applicants respectfully submit that it would not have been obvious to replace data collection device **20** of loppe with a routing node because loppe teaches that the device is a passive monitoring device that either copies or passively monitors signaling messages, rather than routes the messages. For example, loppe states:

The input **24** may be embodied in various ways, such as a passive signal splitter in the form of a wye-coupler which would be connected to the link between the MSC **12\*** and BSC **14\***, an electro-inductive coupler that would be coupled in non-contact fashion to the link joining the MSC **12\*** and the BSC **14\***, a repeater with branch-off or processing capability or any other suitable signal splitting device. IN the case where the signal is intercepted, a copy made and the original re-transmitted along the link, a slight delay may be introduced on the link joining the MSC **12\*** and the BSC **14\***. However, since it is possible to re-transmit the received message within microseconds, the effects of making a copy will be negligible. (See paragraph [0034] of loppe.)

The above-referenced paragraph describes the input of device **20** as a device that either splits or passively copies a signal. Routing a signaling message necessarily requires a routing table lookup and possible transfer of a signal from an inbound signaling link to a different outbound signaling link based on the lookup. The signal splitting or copying performed by loppe would not suggest a routing node to a person of ordinary skill in the art because such splitting or copying suggests that the original message and its path are not altered. Thus, for this additional reason, the rejection of claim 1 and its dependent claims as unpatentable over loppe should be withdrawn.

Independent claim 15 recites a method for reducing location management traffic in a mobile communications network. The method includes receiving a first location update message in response to a first change in location of a subscriber and forwarding the first location update message to an HLR associated with the mobile subscriber. The method further includes receiving a message from the HLR including subscription information for the mobile subscriber and caching the subscription information. A second location update message is received in response to a second change in location of the subscriber. Claim 15 has been amended to recite that the message generated on

behalf of the HLR is generated in response to the location update message. For example, in Figure 7 at line 2, MMR **300** receives an update location invoke message. In line 3, MMR **300** generates an insert subscriber data invoke message on behalf of HLR **104** using the previously cached information from the insert subscriber data message in Figure 6. Thus, claim 15 recites a method for caching subscription information and using the subscription information to respond on behalf of an HLR to a second update location message regarding a mobile subscriber. In addition, the steps in claim 15 are performed at a routing node.

As stated above with regard to the rejection of claim 1, there is no teaching or suggestion in loppe of performing any steps at a routing node and it would not have been obvious to a person of ordinary skill in the art to perform location caching or other steps at a routing node because loppe teaches that data collection device **20** is an inline device that passively copies or splits signals, rather than routes signals. Thus, for this reason, the rejection of claim 15 as unpatentable over loppe should be withdrawn.

Moreover, claim 15 recites that stored subscription information is used to generate and route a message on behalf of an HLR in response to a location update message. Regarding caching subscription information, loppe teaches only caching subscriber location information. In addition, as stated above with regard to the rejection of claim 1, loppe only teaches delivering location information to location management function **32**. There is absolutely no teaching or suggestion of responding to any messages on behalf of an HLR using cached location or other information. For these



additional reasons, the rejection of claim 15 and its dependent claims as unpatentable over loppe should be withdrawn.

Independent claim 29 recites a network routing node including a communications module for sending and receiving signaling messages, a location register caching application, a location register cache, and a routing module. The location register caching application identifies signaling messages transmitted between an HLR and a VLR relating to the location or subscription of a subscriber, extracts mobile subscriber information from a first type of the identified signaling messages and generates response messages to a second type of the identified signaling message using the extracted information. The routing module routes the response messages generated by the location register caching application. Thus, claim 29 recites a network routing node that caches information extracted from signaling messages transmitted between an HLR and a VLR, responds to other types of messages transmitted between the HLR and the VLR using the extracted information, and routes the response messages.

As stated above with regard to the rejection of claim 1, loppe fails to teach processing any signaling messages transmitted between an HLR and a VLR. Moreover, loppe teaches only that location information is delivered to a location management function **32** of a location based application **30**. In contrast, claim 29 recites generating responses to identified signaling messages transmitted between an HLR and a VLR. There is no teaching or suggestion in loppe that location management function **22** or location based services application **30** is an HLR or a VLR. In addition, there is absolutely no teaching or suggestion of responding to signaling messages using

cached location information extracted from other signaling messages. Accordingly, for these reasons, the rejection of claim 29 and its dependent claims as unpatentable over loppe should be withdrawn.

#### New Claims

New claims 37 and 38 are proposed to be added. New claim 37 depends from claim 1 and is believed to be patentable over loppe for the same reasons stated above with regard to claim 1 in addition to the additional elements recited in claim 37. Support for claim 37 appears, for example, on page 31 at lines 1-10 of the present specification.

New claim 38 depends from claim 29 and is believed to be patentable over loppe for the same reasons stated above with regard to claim 29 in addition to the additional elements recited in claim 38. Support for new claim 38 is found, for example, on page 31 at lines 7-10 of the present specification.

#### CONCLUSION

In light of the above amendments and remarks, it is respectfully submitted that the present application is now in proper condition for allowance, and an early notice to such effect is earnestly solicited.

If any small matter should remain outstanding after the Patent Examiner has had an opportunity to review the above Remarks, the Patent Examiner is respectfully requested to telephone the undersigned patent attorney in order to resolve these matters and avoid the issuance of another Official Action.

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DEPOSIT ACCOUNT

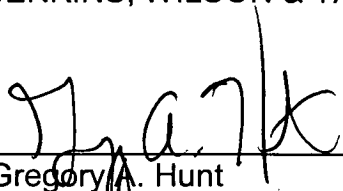
The Commissioner is hereby authorized to charge any fees associated with the filing of this correspondence to Deposit Account No. 50-0426.

Respectfully submitted,

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